Keywords for Today’s lesson

What do the following words mean? Relate them digital devices and give examples where possible

1. **Resources**
2. **Network**
3. **Encrypt**
4. **Span**
5. **Sync**

Keywords for Today’s lesson

What do the following words mean? Relate them digital devices and give examples where possible

1. **Resource –** something that can be used to help you
2. **Network -** two or more computers that are linked in order to share resources
3. **Encrypt -** conceal data by converting it into a code
4. **Span -** the amount of space that something covers
5. **Sync -** happen at the same time or to match up and pull together data

Types of Networks

TOPIC 2 – TRANSMITTING DATA

UNIT 1 – INFORMATION TECHNOLOGY SYSTEMS

FARHAN MUKADAM

Network

When two or more computers are linked together in order to transmit data.

Wired and wireless methods

Usually defined by their size and have their own features and uses.

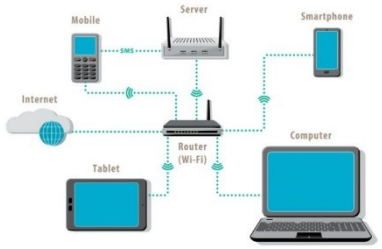
Types of Networks

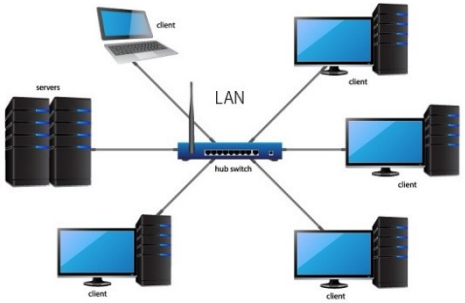
LAN

WAN

PAN

VPN





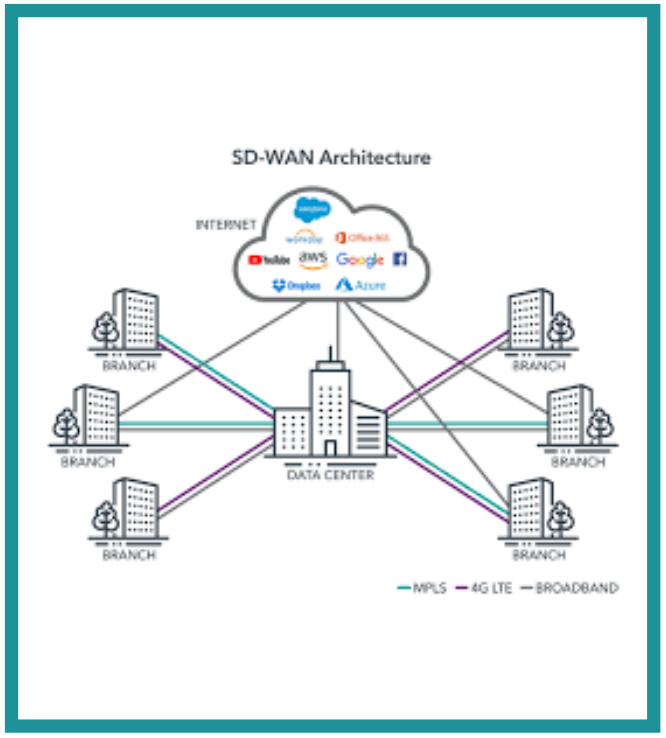
Local Area Network

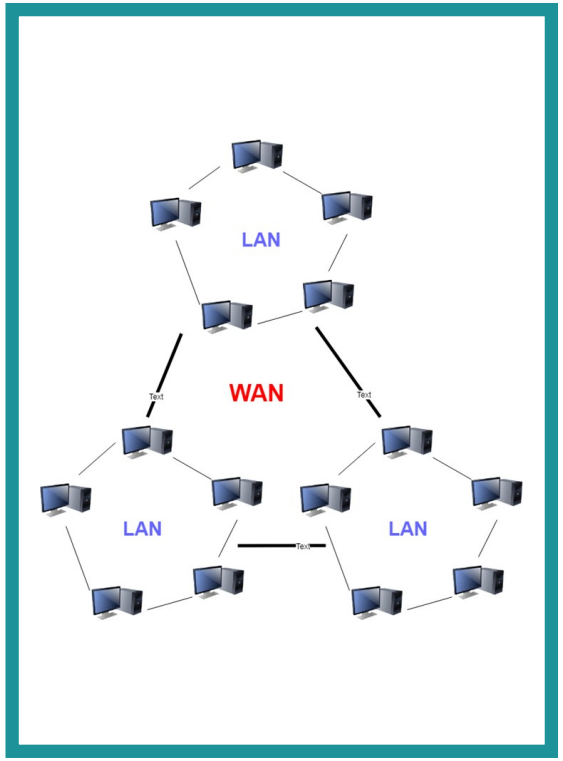
Areas a relatively small geographical area

Usually, a single building or site.

This allows us to connect all of the computers in our home/business together to share data.

Allow all the computers to share resources



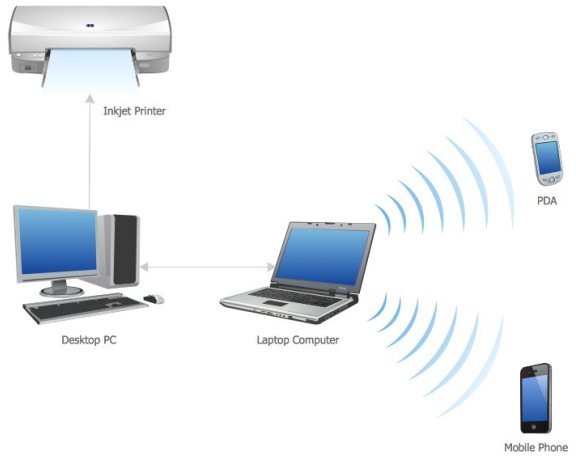


Wide Area Network

Spans a large geographical area, such as an entire city, country or the whole world.

A WAN is used by businesses to connect together the LANs of different offices

The internet itself is an example of a WAN



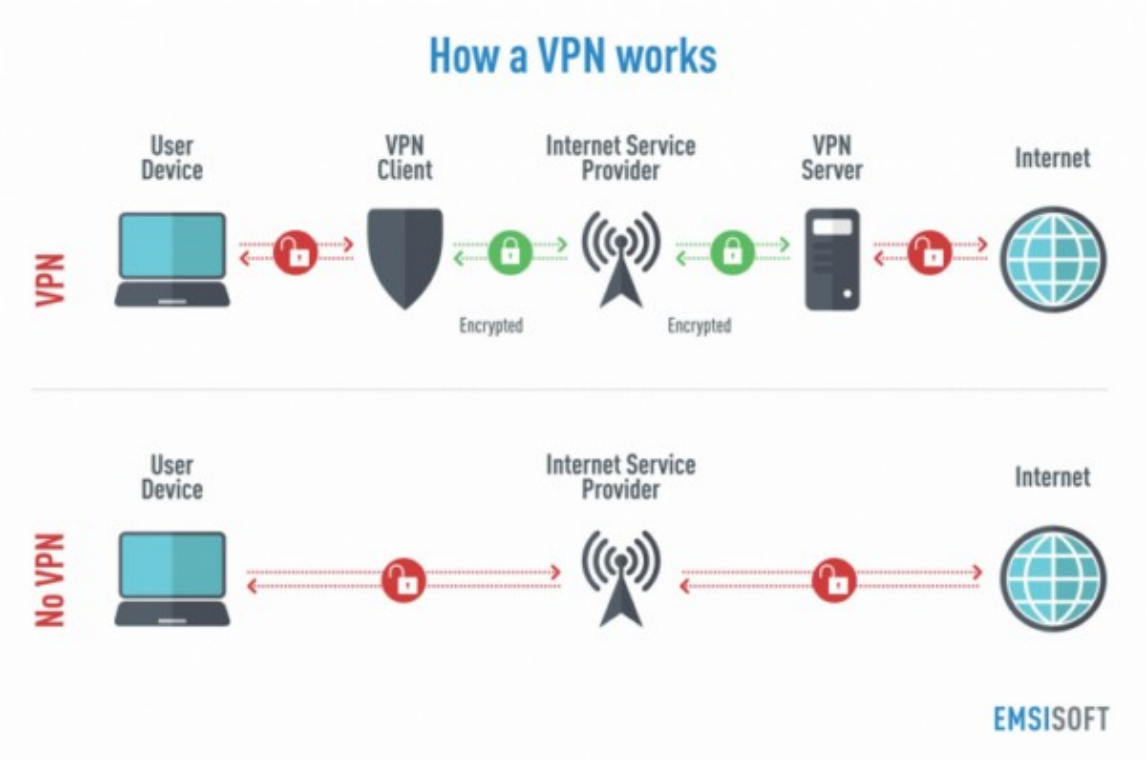
Personal Area Network

Used to connect devices within the range of a single person.

Connect our digital devices together,

Used both for personal and business use.

This is to allow us to sync our data between the devices



Virtual Private Network

Private network that runs across a public network, namely, the internet.

By encrypting the data that is being transmitted over the internet.

This is commonly used by businesses in order to allow employees to access their work’s network securely,

Notes Activity – 20 mins

1. Look through additional slides in the PowerPoint on Wireless Connections

2. Add **additional** notes for each wired connection **- 2 Bullet Points minimum**

3. Add **1 additional advantage** and **1 disadvantage** for each wired connection

Flipped Learning–

1. Look through **AND** make notes on '**Factors affecting choice of network**"
   pages 30- 32 in the Unit 1 textbook

2. Complete **WS18 Factors Affecting Choice of Network**

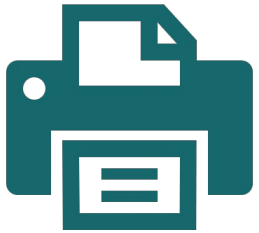
Deadline Monday 15th November 4pm

LAN

A Local Area Network (also known as a LAN) is a network that spans a relatively small geographical area, usually a single building or site. This allows us to connect all of the computers in our home/business together to share data. We commonly use Ethernet cables to create a LAN, however wireless connections can be used, usually through the use of WiFi.

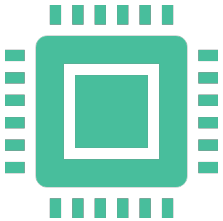
A LAN is most commonly used in a business but can be used in the home for personal use. This is commonly used to allow all the computers in a business to share resources, such as a single internet connection, a printer, or access to documents and other files.

LAN – Advantages



Peripherals, such as printers, can be shared within a business between multiple computers which will save the business money.

Files can be stored in a central location so that users can access them from any computer connected to the LAN. Important documents can also be shared with all users.



Computers can be centrally managed which is much more efficient. For example, installing software or backing up all the computers without having to do so manually on each device.

LAN – Activity

Does your school use a LAN?

What reasons do they use the LAN for in your school?

WAN

A Wide Area Network (also known as a WAN) is a network that spans a large geographical area, such as an entire country or the whole world. We commonly use dedicated network lines rented from a telecommunications provider, or the internet along with a technology called VPN (we'll look at this in the next section).

A WAN is used by businesses to connect together the LANs of different offices of a business so that they can share data such as documents between each other in a secure manner. The internet itself is an example of a WAN (though it's also made up of lots of smaller WANs).

WAN – Advantages

Confidential data can be shared between different offices in a business with a very high level of security.

Files can be accessed from different business locations and important documents can be shared between all employees within the organisation.

A dedicated WAN uses private leased lines rather than broadband internet connections to transmit data which will usually provide faster data transfer speeds.

WAN – Activity

- What types of documents might a business like to share using a WAN that connects its offices in different countries?

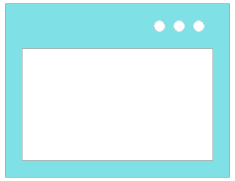
PAN

A Personal Area Network (also known as a PAN) is one that is used to connect devices within the range of a single person. This allows us to connect our digital devices together, such as our personal computer and mobile devices. This connection is usually created through the use of a Bluetooth wireless connection or via a USB cable.

This is commonly used both for personal and business use. Usually, this is to allow us to sync our data between the devices, e.g. our emails, files or appointments. Recently wireless PANs are commonly used to connect wearable devices to a smartphone or tablet. An example would be a connecting a headset to a smartphone for hands-free phone calls.

PAN – Advantages

Reduces the need for cabling which can help remove tripping hazards and frees up work floor space.



Data can be automatically synchronised between multiple devices to ensure data is up-to-date in all places, preventing mistakes such as getting a meeting time wrong.

PANs only connect over a small area between one or two people which makes them very secure for transmitting data between devices.

PAN – Activity

Another use of a wireless PAN is to connect a smartwatch to a smartphone.

What reasons are there for connecting these two devices together?

VPN

A Virtual Private Network (also known as a VPN) is a private network that runs across a public network, namely, the internet. It does this by encrypting the data that is being transmitted over the internet.

This is commonly used by businesses in order to allow employees to access their work’s network securely, without having to have a dedicated private wide area network, which is much more expensive. It is nowadays also used at home in order to offer the same level of privacy for individuals when using the internet.

VPN – Advantages

Individuals can gain secure access to resources on their works local area network while away from the office.

VPNs are a much cheaper alternative to using a Wide Area Network for accessing work resources remotely.

If using a public or unsecured network, data being transmitted will still be secure as it is encrypted and so unreadable by anyone who intercepts it.

VPN – Activity

Why might a home user make use of a VPN?

Why does a business ever use a dedicated private WAN if a VPN is a cheaper option?

Types of Network Summary

- A Local Area Network (LAN) is a network that spans a relatively small geographical area, usually a single building or site.
  - It is commonly created using ethernet cables, or WiFi for a wireless LAN.
  - It is used to allow computers to share resources, such as an internet connection, a printer or access to files.
  - It lets you share peripherals, access files flexibly and centrally manage computers.

- A Wide Area Network (WAN) is a network that spans a large geographical area, such as an entire country or the whole world.
  - It is commonly created using dedicated network lines rented from a telecommunications provider, but can also run over the public internet using a VPN.
  - It is used to transmit data securely between different locations in a business, such as confidential documents or emails.
  - It is secure, files can be accessed from across different business offices and is often very fast.

Types of Networks Summary

A Personal Area Network (PAN) is a network within the range of a single person.

- It is commonly created wirelessly using Bluetooth or wired using USB.
- It is used to connect digital devices together, such as to sync files/emails/calendars between devices or transmit data with wearable devices like a headset.
- It can reduce cabling, automatically sync data between devices & is secure for transferring data.

A Virtual Private Network (VPN) is a private network that runs across a public network, namely, the internet.

- It is commonly created using an encrypted tunnel through the internet.
- It is used to transmit data securely between different locations without the cost of a dedicated private WAN.
- It allows you to access work files remotely, is cheaper than a WAN and is secure.